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This is an Author's Accepted Manuscript of: Stoney, S. B. (2003). Intranet usability and design. Proceedings of Australasian Conference on Information Systems. Perth, WA. We-B Centre, Edith Cowan University.
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Intranet Usability and Design

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Abstract

Over the last few years, companies have scrambled to get their commercial websites up and running, but have seen the intranet as being a space where they can put information, without worrying about making it user friendly or even useful. This paper describes a piece of introductory research which set out to discover how much emphasis a small, a medium and a large organisation were placing on their Intranet. The resultant interviews highlight some of the issues that can then be used to provide a set of guidelines for best practice in Intranet design.

Keywords

Intranet, Usability, Intranet Design, Usability Guidelines

INTRODUCTION

An informal review of company websites has revealed that, whilst large amounts of time and money are expended on the commercial website, very little thought is given to the intranet, treating it as an "add on" to the commercial webspace. Many companies, when surveyed, felt embarrassed about this, and refused to take part in the research study. A typical answer was "our staff have to go there, they don't care if it's (word deleted), they just find what they need and leave". Another category of response fell into the "we don't want people looking in there, it's not that pretty". Many companies were also concerned about the level of confidential material in their intranets and refused permission to conduct usability studies because of this, whilst confiding that "the whole thing's garbage, complete (word deleted), we haven't got the budget to fix it". These types of responses are quite worrying given that intranets often have 100 - 200 times the number of pages that an internet site may have (Nielsen, 2000).

LITERATURE REVIEW

Intranet design is about improving employee productivity. However many intranets are simply bolted on to the existing Internet site without considering the needs, goals and technical constraints of the users. An Internet site is generally used by customers who go to the site for a limited range of information, but an intranet is used by employees for all the information they require to do their job (Nielsen, 2000). Most organizations implement an Intranet to cut costs by improving employee productivity, morale and loyalty (www.usability.com). When an Intranet lacks usability, the costs incurred through increased search times, increased necessity for training, and increased support can be huge. Employees also experience a loss of morale and increased frustration (for example when they can't access their on-line payslips).

What is an Intranet?

An intranet is a network within an organization that uses Internet technologies to enable users to find, use, and share documents and Web pages. Companies use intranets to communicate with employees. Intranets are usually behind a firewall, or behind several firewalls connected by secure, possibly virtual, networks and are not limited by physical location, with employees being able to access the Intranet from anywhere around the world.

One of the issues with Intranets is that they are different from the Internet in that the users are not customers, but employees, and they will therefore have different needs and goals. One advantage of an Intranet as an enabling technology is that it helps employees manage information overload by creating a more complete and uniform linkage of information resources that are normally scattered throughout the organization (Kalakota & Robinson, 1999). However, this is only truly useful if the Intranet is designed for ease of use.

Usable Intranet Design

Due to the belief that most money will be made on the Internet (Nielsen, 1999), the Intranet has been relegated to a relative minor position within organisations. However, as the shift from simply increasing revenue through online channels to saving money and increasing employee productivity occurs, many organisations are beginning to see their intranets becoming powerful knowledge management systems. (Telleen, 1997). Nielsen (2001) believes that good intranet design can save time, and therefore money. Whilst at Sun Microsystems he calculated that by multiplying the number of employees using the Intranet by the amount of usage by the amount of time saved by the hourly cost of an employee, he estimated that users would save one second per page viewed if they immediately understood the meaning of buttons. He also calculated that users would save five minutes each time they tried navigating a new subsite using standardised navigation, rather than having to learn a new system. He ultimately believed that by standardising buttons on the SunWeb site, they would save US$1million in employee time, and by standardising the navigation toolbar they would save US10million a year (Hildebrand, 1997). The Nielsen Norman Group has since found that time spent on sixteen key tasks by an employee on a very usable intranet compared to time spent on an unusable intranet could vary by as much as 169 hours per year, losing up to US$3,000 per employee annually (http://www.rawnet.com/news-$/poor-intranet-design-could-cost-companies-us$15m-a-year)

A means of overcoming this issue is to apply a set of Intranet standards.

Intranet Standards

The first step is the application of a methodological standard. This is a checklist that is used to remind developers of the tasks needed to create usable systems. Many Intranets are built as an "add-on" to the corporate Internet, resulting in a product that does not meet the users' goals. Application of methodological standards means that users are interviewed, requirements analysis, task analysis, task design and a search engine dominance plan completed. Design standards are then put in place. A design standard is the building code for the Intranet, ensuring a consistent look and feel throughout the site. Many of the Intranets reviewed in the course of this paper had different standards for different areas, making the users feel as though they had moved to a different site altogether. Good design standards tend to be template-based, being formed around a set of reusable standard page types (Nielsen, 2001).

Once the Intranet has been designed, the content should also conform to good design principles. Good design principles are specific and research based. Text based material should be rewritten to conform to Web usability guidelines. The following is an extract from a study conducted by Lewinstein (2000):

Text Attracts Attention Before Graphics

Of users' first three eye-fixations on a page, only 22% were on graphics; 78% were on text. In general, users were first drawn to headlines, article summaries, and captions. They often did not look at the images at all until the second or third visit to a page.

Keep Headlines Simple and Direct

Confirming the findings from 1997, the users in the current study also preferred straightforward headlines to funny or cute ones. A new finding was that users often praised the Web headlines for being better than the headlines in print newspapers.

Shallow Reading Combined with Selected Depth

It was more than three times as common for users to limit their reading to a brief as opposed to reading a full article. Even when reading a "full" article, users only read about 75% of the text.

In other words, the most common behavior is to hunt for information and be ruthless in ignoring details. But once the prey has been caught, users will sometimes dive in more deeply. Thus, Web content needs to support both aspects of information access: foraging and consumption. Text needs to be scannable, but it also needs to provide the answers users seek.

Site design must accommodate people who leave and return frequently:

Help users reorient themselves by using plain and simple headlines, which immediately tell users what each page is about. Simple page titles that start with a salient keyword help users pick out pages from the minimized tiles in the Windows task bar. It should never be assumed that users will remember their entire browsing session:

breadcrumbs and other location tools should always be provided.

The standard link colors should not be changed - doing so makes it harder to recognize what pages the user has already seen.

Although Lewinstein's article is about the behaviour of newspaper readers, it is equally applicable to Intranet users. Many Intranets contain lengthy documents, such as policy documents, that organisations expect their employees to read, as well as newsletters and news items.

The best way to check whether an Intranet site conforms to the usability guidelines is to organise usability testing.

What is usability testing?

Usability testing involves watching a person perform specific tasks on a web site in order to discover the ways in which the site enables (or hinders) the person doing their job or reaching particular goals. Usability testing does not determine the quality of the site, it simply highlights issues that users (not experts) might experience when trying to perform a task. Users are not interviewed to elicit opinions about the site. The site might have brilliant aesthetic appeal, but be extremely confusing to use, and conversely, it might not look terribly attractive but be very simple to use, and users are often initially swayed by the appearance of a site.

Focus groups are not used to get group opinions. Only one or two users are individually tested at any one time. Users are also not trained to use the site in any way, but are often trained in the talk aloud protocol (Hayes, 1999).

There is some potential for the test protocol to affect the results in the study. The fact that there is an observer means that the users may slightly change their behaviour. The only way to overcome this would be to covertly observe the users, but this would eliminate the ability to interact with them about their experiences, and it would also be difficult to get ethics approval for such a study. Nielsen (2001) has identified four areas of potential bias:

Order of testing page: Good or bad experiences can influence the way in which a user views subsequent pages within the Intranet.

Difficulty of tasks: Some tasks are, by their nature, more difficult than others, and it is therefore difficult to compare different areas within the Intranet. However, some tasks may be more difficult than necessary due to poor usability, and the researcher has included some observations about this issue in the results section.

Helping users experiencing difficulties: Once a user has become completely stuck, the observer has a dilemma over whether or not to help, as help will affect the outcome of the study. However, notes on the area of difficulty and the help rendered can add to the quality of the information gathered. So, although it can bias the study and must therefore be approached with caution, it can also be useful to help the users when they become stuck.

Clarification: Sometimes it is necessary to ask a participant to clarify a particular remark. This may interrupt the thought flow and so must be carefully considered.

The consideration of all above areas of bias are necessary in order to identify potential areas where the results have been affected, and whether or not the same results could have been obtained. Subsequent usability studies will confirm or refute the findings in this regard, and therefore is a limitation of any preliminary study.

OVERVIEW OF THE STUDY

A preliminary study was conducted based on the methodology developed by Nielsen (2001). Three sites were used for testing: a small travel company (8 employees), a medium sized retail company (140 employees) and a large educational institution (over 500 employees).

In this preliminary study it was decided to test only 4 employees from each organization; 8 men and 4 women, which was a representative sample of the ratio of men to women in the various organizations. The users selected were all typical of administration staff in each of the organizations. They were all people who knew how to use browsers and who had already had at least a year's experience of their own organisation's Intranet.

Each of the organizations required confidentiality agreements, and no screen captures were possible for publication.

Positions held by the people participating in the study were as follows:

Administrative assistant
Manager of operations
General manager

Project manager
Accountant
Marketing manager
Clerk typist
Accounts clerk
Research assistant
Information support officer
Accounting officer

Their use ranged from a few times a month to several times a day. Common tasks performed were as follows:

Find phone numbers/locations/email addresses
Project information
Payroll
Announcements
Find company policies
Download forms
Holiday requests
Review jobs
Complete expense reports.

METHODOLOGY

The methodology was based on the usability testing methodology as used by Nielsen (2001). The study was exploratory to determine how usable three particular intranet sites were, with no particular hypotheses to be proven.

Each of the participants was tested individually, and their comments were recorded. Video cameras were not allowed by any of the organizations, so it was not possible to show body language. However, some of the body language was recorded on the data gathering sheets by the researcher.

The participants were given common tasks to perform on their company intranets, and the researcher observed their progress. In addition, they were asked questions to ascertain their conceptual understanding of their company Intranet. The questions were as follows:

1. Do you have a conceptual map of your company Intranet? If so, briefly describe it.
2. Do you know the range of pages contained in the Intranet? What are they?
3. How many areas of your Intranet do you frequent? What are they?
4. Do you always know when you are in the Intranet? How?

Tasks they were asked to perform were as follows:

1. Find your payslip for (date varied)
2. Look up the office location for (name supplied)
3. Find the email address for (name supplied)
4. Find document entitled (title supplied)
5. Find documentation on (name supplied) project
6. Find and complete the form for your recreation leave for 2004
7. How much sick leave do you have left for 2003.
8. Who is the Chair of the (name supplied) Committee?
9. Find the policy concerning email retention
10. Who is the manager for Occupational Health and Safety?

Tasks were chosen on the grounds that they could be generalised to almost any type of Intranet, thereby giving consistency across the study.

Participants were asked to complete a pre-test questionnaire to provide some basic demographic information:

Background Questionnaire

This information will be kept strictly confidential

1.	Your age:	21 – 25	26 - 30	31 – 35	
		36 – 40	41 – 45	46 – 50	50 plus
2.	Gender:	Male	Female		
3.	Position				
4.	Where do you access the Intranet?	Work	Home	Work and Home	
5.	How often do you access the Intranet?	Several times a day	Most days	Less than once a week	Less than once a month
6.	How long have you been using the Intranet?	1 year	2 – 4 years	More than 4 years	
7.	What do you use the Intranet for?	_____			
		_____			
8.	List any pages on the Intranet that you think				
	are particularly useful	_____			
		_____			

Figure 1: Pre-test Questionnaire

RESULTS

The results of this study are reported as extracts from the dialog with the study participants. As stated earlier, the users and their organisations have to remain anonymous, and screen captures were not permitted. However, a reasonable picture of the perceptions of the various Intranets can be obtained by analysing the conversations with the users.

Bias should be accounted for, as it became obvious that 2 of the users initially tried very hard to complete tasks, and did not wish to be seen as failures. Once the objectives of the study were explained to them again, they became more relaxed about this.

The pre-test questionnaire gave some interesting demographic data about the 12 users. For example,

Background Questionnaire

This information will be kept strictly confidential

1.	Your age:	21 – 25 1	26 – 30 2	31 – 35 2	
		36 – 40 3	41 – 45 1	46 – 50 2	50 plus 1
2.	Gender:	Male 8	Female 4		
3.	Position				
4.	Where do you access the Intranet?	Work 50%	Home 0%	Work and Home 25%	Don't! 25%
5.	How often do you access the Intranet?	Several times a day 50%	Every day 17%	Less than once a week 8%	Less than once a month 25%

6.	How long have you been using the Intranet?	1 year 17%	2 – 4 years 66%	More than 4 years 17%
7.	What do you use the Intranet for?	Pay: 75%, Leave issues: 66%, Accessing documents: 66%, Looking up phone numbers: 75%, email addresses: 75%, policy documents: 16%		
8.	List any pages on the Intranet that you think Are particularly useful	Pay: 75%, phone numbers: 75%		

Figure 2: pre-test questionnaire data

Name	Age	Position
Mary	36-40	Admin Assistant
Ellen	26-30	Research Assistant
Linda	31-35	Project Manager
Carole	46-50	Clerk Typist
Ron	31-35	General Manager
Tom	26-30	Marketing Manager
Ian	36-40	Accounts Clerk
Kim	21-25	Information Support Officer
Stuart	46-50	Accountant
Rod	50+	Accounts Officer
Mark	36-40	Project Manager
Alan	41-45	Manager of Operations

Figure 3: Breakdown of age and position by user

It became immediately apparent that not all users accessed the Intranet as part of their job, although they were nominated, and agreed to participate in the study. When questioned about this they gave reasons like: "I prefer to use the switchboard to put me through to people" (Kim), and, "I print out the phone and email list and look things up from there" (Mark). "I never use it because I can't find anything,... don't like it, it's ****" (Ian).

Although these three people acknowledged that it might be quicker to use the Intranet to look up phone numbers and email addresses, they all had a strong resistance to it. Ian said "I can't... my typing's crap... it's got to be quicker to ring the switch".

Responses to the interview questions

1. Do you have a conceptual map of your company Intranet? If so, briefly describe it.
   Not one of the respondents could adequately describe the way their company Intranet was set up. Typical comments were as follows:

   Mary: "What's a conceptual map? Not sure... I suppose I could draw some sort of ... , no I don't really think..."
   Ron: "Not a clue. Never thought about it... nothing comes to mind"
   Ellen: "Maybe... nope!"
   Tom: "Yep, I think I can do this. [Tom draws a classic hierarchy chart] it looks like this, with the start being the... oh, what's the start page?? Where does it start? Not like the Web site?"
   Ian: "**** no!".

2. Do you know the range of pages contained in the Intranet? What are they?

   Again, most of the participants had never really thought about this question and were unable to name the full range of pages within the Intranet.

   Stuart: "yeah, there's all the stuff for admin, accounting, marketing, plus the news."
   Linda: "Gawd! I only go to check my pay, and I can never find that half the time".
   Carole: "Sorry, this isn't something I waste time thinking about. Just want to do what I have to do and keep moving.

3. How many areas of your Intranet do you frequent? What are they?

   Most of the participants could name several areas of the Intranet, mostly the payroll, holiday entitlements, However, when they were asked to find policy documents they could not say where they were, although 4 of the 12 navigated their way there. It is interesting to note that the participants who rarely used the Intranet had a basic idea of what was in it, and could name some of the common tasks that could be performed.

4. Do you always know when you are in the Intranet? How?
   Rod: "the only way I know that I'm in the Intranet is that it says so down the bottom of the screen. My last company had a separate Intranet that told you you were in it. It had it's own address and everything.l This one is a bit confusing to say the least 'cos it's all tied up with the main website.

   Ellen: "yes, we have to type in a different address or click on a link on our desktop. That's quite easy".
   Mark: "nope, wouldn't have a clue...why I get confused...never know where I am".

The participants were then asked to perform fairly routine tasks on their Intranets. Tasks they were asked to perform were as follows:

Find your payslip for (date varied):
Alan: "I can't use the payroll system as it doesn't work on my computer (a Macintosh)." When the researcher pushed him to try it, it was apparent that the poor design of the payroll system fooled him into believing that it didn't work as at least five of the screens were blank, with only one framed item changing, which he hadn't noticed. Alan's response to this was one of amazement. He said that he had been trying to get IT to sort it out for three years and they could not identify the problem (all conversations had been on the phone).

Everyone else who was tested found their payslips without problems, although one participant, Kim, had forgotten her password. A call was put through to the company helpdesk, who mentioned that 80% of their logged calls were to reset passwords. The three participants who did not use the Intranet took the longest, but all managed the task.

Look up the office location for (name supplied)
Again, this was a reasonably successful exercise. However, one organisation's search facility was rather poor, and required the full name, spelt correctly. One of the name's chosen was Polish and no one knew how to spell it correctly, so couldn't find it. This organization did not have a hierarchy chart, so there was no other way to find the office location. This task spurred Ian into a tirade about the Intranet, its poor design and designers in general.

Find the email address for (name supplied)
The same issue applied as above, but on easy names, everyone found the addresses.

Find document entitled (title supplied)
Only 5 of the 12 participants looked for the document via search. The others tried to "second guess" which department would have produced the document and looked for it there. Only 8 of the 12 found the document, with 4 people spending in excess of 5 minutes looking for it. The shortest time was 28 seconds.

Find documentation on (name supplied) project
Again, not everyone used search, but after the previous exercise, 8 people now used the facility. However, there were several documents with similar names and everyone had to spend time looking for the correct project. Shortest search time was 1 minute, 15 seconds, longest was in excess of 8 minutes.

Find and complete the form for your recreation leave for 2004
This was a fairly quick exercise, completed successfully by all 12 people. However, the form's design in one organization caused several problems, with 2 people asking me what I thought a particular question meant.

How much sick leave do you have left for 2003.
This task was completed with relative ease by 75% of the group. All respondents had to look for the area on the Intranet, as it was one they rarely accessed. The three people who did not use the Intranet struggled with the task, with two of them saying that they did not know the facility was available.

Who is the Chair of the (name supplied) Committee?
This task caused all participants difficulty as the committee chosen was deliberately obscure, so that they would have to look for the information rather than know it. None of the participants knew where to look, and again, it was those who used the search function who had the most success.

Find the policy concerning email retention

All participants began this task by saying that they did not have an email retention policy. All 12 began the task by browsing, with 6 then reverting to the search facility. Three participants did not find the policy at all, and asserted that there was no such thing. All three were shocked when shown that it did exist!

Who is the manager for Occupational Health and Safety
Five people knew this without looking for it, but were asked to find the information anyway. Again search was the means that was most successful in finding the information. One person did not find the information after 7 minutes of looking, and gave up.
The three people who rarely used the Intranet generally had the most difficulty as they had no real understanding of the structure. Whilst two of them used the Internet reasonably regularly, they obviously had an issue about the Intranets and the way they were designed (they were from different organizations).

OUTCOMES

Less than 75% of the participants used the search facilities, and this could be ascribed to the fact that the search button was not prominent on all the pages. In fact, in one organization, the participants had to drill down for the search facility, rather than having it on each page. As search was the means by which most participants found the information quickly and effortlessly, search being an area that should be given prominence in Web usability. Another issue with search was that many of the hits were for old documents, which were not described, meaning that the users had to examine each document before deciding that it was not the correct one.

It was interesting to observe the three non-users. All three admitted that they had learned a lot from undertaking the study (this was not an initial goal of the study), but also pointed out that the poor design of the Intranets made them very difficult to use.

Carole: "the design is just so bad...I give up straight away...I use the Internet quite a bit, but when a site's like this I just leave it. They [the management] think we all have to use this stuff [Intranet], but I'm good at getting around [it]. There's always someone to ask stuff of or get stuff off, I don't worry at all."

Alan: "look at this would you, I'm expected to read a 20 page document from the intranet. Why don't they just give it to me on paper, I'm only going to print it anyway. This whole thing is like that... I get a list of links by email and I have to read all this stuff – it's not going to happen!

Alan raised an interesting point, in that many of the employees were given links to follow, that simply necessitated them printing more and more documents. Content redesign in the form of microcontent would

Ian: "everyone knows it's crap... no money to fix it up, we use it or not, whatever [we] feel like. I might try a bit more often now – NOT! No, might try it, might nag someone to get it fixed. Can you do that [talking to researcher] for us? [They] might listen to you!"

The poor design referred to regularly, by all participants, involved the fact that documents were not where they expected them to be, headings were vague or obscure, some of the colours were unappealing (one participant was colour blind and found some of the buttons hard to decipher), many of the documents were out of date due to the fact that none of the organizations had a content management system which would allow users to upload documents to the intranet themselves.

A series of recommendations have become evident from the results of this study.

RECOMMENDATIONS

A search for "internet usability" returned 584,000 hits on Google (www.google.com), whereas a search for "intranet usability" returned 86,200. This is a considerably smaller number of hits, and probably reflects the paucity of hard research and interest in the area. Earlier in this paper a series of design principles was outlined. The testing was carried out with these design principles in mind and the results of the testing showed where they were breached. The recommendations have been given to each of the organizations for their next iteration of the intranet sites.

Search should be an integral part of every page of a company's Intranet. Spool's (1999) findings show that about one-third of all users utilise the search facility, whereas Nielsen (2000) has asserted that almost half of all users are search dominant. The study undertaken for this paper showed that slightly more than half the users used the search facility immediately, with another 20% using it as a last resort. This highlights the fact that the search facility is even more important than the literature has state d.

An intranet should never be "bolted on" to the Internet site of an organization – the needs and goals of the users are quite different. Instead a corporate intranet standard should be developed through consensus with employees, dissemination and training. The standard should incorporate a common look and feel, whilst

allowing individual departments to develop their own content and unique identity. An intranet is an ideal opportunity to showcase projects to employees and should always have senior management support.

Designers need to have conducted user analysis and task design, carefully thought through the site structure and use of controls and displays. They should consider the layout, colour and backgrounds, graphic design and micro content. One of the organizations had a series of quick links to assist employees find the most used areas quickly and easily. However, it was observed that many users had never explored the intranet beyond the quick links, creating an impoverished intranet experience.

Many of the users in this test felt that their company intranet sites were badly designed; they did not like the look and feel as many areas of the intranet looked different from other areas, and they did not understand the structure of the site. A recommendation would be that companies have a separate space for their intranet, with a discrete URL and a look and feel distinctive from the Internet space.

The following recommendations could be applied to each of the three test sites:

1. Ensure text stands out
Use a **"flat" color scheme** for text and background. Red text on blue background is a reasonably common combination. Red "floats" on saturated blue and is hard to read. Colour blindness also needs to be considered. A good test is to print out screens on a black and white printer. Anything that can't be read on paper, won't be able to be read on the monitor by some users.

2. Avoid animations
Animation triggers a reflex response from the eye. Readers are literally forced to look at it. Therefore, avoid gratuitous movement because it detracts from the other elements you want seen. It should be noted that none of the intranets reviewed used Flash or Java, but there were incidences of animations that were superfluous.

3. Ensure buttons and links are obvious
Buttons allow for linking to another page, but sometimes it is impossible to tell a navigation button from a picture.

4. Don't assume users will understand the design
Assumptions can be identified with **usability testing**. The web design should be tested on actual users, which is not difficult in the case of an Intranet. It should be tested during the conceptual phase, before a total commitment to the HTML and graphics investment is made. It should also be tested after construction.

5. Arrange search hits in date order
Search hits should be arranged with the most recent documents presented first. An adequate description of each document would also help the user decide whether or not to pursue a link. This saves the user time and the organization money.

6. Aim for a common look and feel
There were several areas within the large organisation's intranet that had a completely different look and feel. Several of the participants complained about this, saying that they had just got used to one part, and then had to learn another. Navigation, in particular, should be consistent throughout the site.

7. Implement a Content Management System
Much of the material on the Intranets was out of date because of the unwieldy methods used to upload content. One organization had a system which left it up to the employees to forward new material, with the result that none of them did. Mary, whose job it was to chase up some of the material, found this frustrating, as people could never remember what documents were supposed to be uploaded. A system whereby users could automatically forward documents for uploading as they worked on them would increase efficiency, as well as the usefulness of the Intranet.

The forms in the study were sometimes found to be confusing by the users, as were the varied interface designs, and many of the pages had a cluttered look with animations used to try and make them more appealing.

CONCLUSION:

There is no question that attention to usability reduces training requirements as skills of employees can be generalised from previous experiences. Simply copying pages from the organisation's public Web space does not appear to work, as they do not fit with the needs of the environment. The study conducted highlighted many of the issues faced by corporate intranets, but most of them are completely avoidable. Task analysis, followed by rigorous usability testing has the potential to save the organization large sums of money, as users are more likely to use an Intranet that they feel comfortable with. Most of the re-design needed is simple – ensuring that the site has a good search engine, that the site has robust learnability, and is appealing and useful to its users.

REFERENCES:

Hayes, R., (1999)Human Computer Interaction: Evaluating Usability. URL Accessed 23 January, 2003.

Hildebrand, C., (1997) Face Facts [online] http://www.cio.com/archive/webbusiness/020197_facts_content.html. Accessed 13 May, 2002.

Kalakota, R., Robinson, M., (1999). *E-Business: Roadmap for Success*. Addison Wesley Longman, Reading, MA.

Lewenstein, M., (2000). Stanford Poynter Project. URL http://www.poynterextra.org/et/i.htm. Accessed on 3 July, 2002.

Nielsen, J, (2003) 230 tips and tricks for better usability testing. URL http://www.nngroup.com/reports, Accessed 13 May, 2002.

Nielsen, J, Molich, R, Snyder, C, Farrell, S., (2001) *E-Commerce User Experience*, Nielsen Norman Group, Fremont, CA.

Nielsen, J., (2001) The 10 Best Intranet Designs of 2001., URL www.useit.com, Accessed 12 February, 2002.

Nielsen, J., (1999) Intranet portals: The corporate information infrastructure. URL http://www.useit.com/alertbox/990404.html. Accessed 24 September, 2002.

Schaffer, E. M., & Sorflaten, J., (2002). The Emporer's new web site. URL http://www.intranetjournal.com/features/hfi0598.shtml Accessed 26 September, 2002.

Spool, J. M., Scanlon, T., Schroeder, W., Snyder, C., DeAngelo, T., (1999), Web Site Usability: A Designer's Guide, Morgan Kaufmann Publishers, Inc.

Telleen, S., (1997) Intranets as Knowledge Management Systems: basic concepts and definitions. URL http://www.iorg.com

NA., 12 January, 2003., Poor Intranet design could cost companies US$15m a year. [online] http://www.rawnet.com/news-$/poor-intranet-design-could-cost-companies-us$15m-a-year. Accessed 20 January, 2003.

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